

*CITATION TRENDS OF APPLIED JOURNALS IN
BEHAVIORAL PSYCHOLOGY: 1981–2000*

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One variable with which to evaluate scientific journals is how often their articles are cited in the literature. Such data are amenable to longitudinal analysis and can be used as a measure of a journal's impact on research within a discipline. We evaluated multiple citation measures for a number of applied journals in behavioral psychology from 1981 to 2000. The results indicate a relatively consistent impact across these journals, with some evidence of growth.

DESCRIPTORS: behavioral psychology, citation trends, journals

Researchers have increasingly reported longitudinal bibliometric analyses of behavioral journals to document research and publication practices. Topics of such analyses have included citation practices (Critchfield, 2002; Poling, Alling, & Fuqua, 1994) and authorship trends (Dymond, Clarke, Dunlap, & Steiner, 2000). In addition, researchers have assessed the performance of individual journals (e.g., Laties & Mace, 1993). The purpose of the current study was to evaluate longitudinally the citation data of a number of applied journals in behavioral psychology.

METHOD

Journal Selection

Two separate analyses of citation data were conducted. The primary analysis was a longitudinal assessment of citation frequencies and impact factors, whereas the second-

ary analysis was an assessment of multiple citation measures for the 2000 publication year. The primary analysis included the following journals: *Behavior Modification (BM)*, *Behavior Therapy (BT)*, *Behaviour Research and Therapy (BRAT)*, *Child and Family Behavior Therapy (CFBT)*, *Journal of Applied Behavior Analysis (JABA)*, and *Journal of Behavior Therapy and Experimental Psychiatry (JBTEP)*. These journals were selected for the primary analysis because (a) the stated purpose of each journal included the application of behavioral principles or the use of behavioral interventions, (b) the journal was indexed in *Journal Citation Reports—Social Sciences Edition (JCR)*¹ (Institute for Scientific Information, 2001), and (c) data for at least 10 consecutive years were available in *JCR*. Three additional journals, *Behaviour Change (BC)*, *Cognitive and Behavioral Practice (CBP)*, and *Journal of Organizational Behavior Management (JOBM)*, met the first two criteria and were included in the

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¹ Journals are selected for the *JCR* database via a peer review process that considers, among other things, the consistency with which journals are published. *JCR* currently includes approximately 1,700 journals from all of the social sciences in its database.

secondary analysis along with the six journals from the primary analysis.

Primary Analysis

The following measures were obtained from *JCR* for *BM*, *BRAT*, *BT*, *CFBT*, *JABA*, and *JBTEP* during the publication years of 1981 to 2000.

Times cited (citation frequency). Each *JCR* volume was examined to determine the number of times articles from each journal were cited by all journals in the *JCR* database in a given year. Although this measure provides an indication of a journal's impact on the scientific literature, it does not account for the number of articles published by a journal each year.

Citation impact factor. Each *JCR* volume was also examined to determine each journal's citation impact factor, which is a quantitative indicator of how frequently a journal's "average" article is cited in a given year. The impact factor also reflects the influence of a journal's recently published articles and accounts for the number of articles published each year. The impact factor is calculated by dividing the number of times articles published during the two previous years were cited during the current year by the total number of articles published in the journal during the 2 previous years. For example, to calculate the impact factor for a journal for 2000, the number of times its articles from 1998 and 1999 were cited during 2000 would be divided by the total number of articles published during 1998 and 1999. A journal with an impact factor of less than 1.0 is generally characterized as "low impact."

Secondary Analysis

In addition to the measures described above (times cited, impact factor), the following citation measures were obtained for all applied journals in behavioral psychology (*BC*, *BM*, *BRAT*, *BT*, *CBP*, *CFBT*, *JABA*,

JBTEP, *JOBM*) listed in the *JCR* database for the 2000 publication year.

Self-citation rate. This measure represents the percentage of times a journal's articles were cited within the journal relative to citations found in other journals (i.e., number of self-citations divided by number of times cited). Journals with high self-citation rates are generally characterized as "isolated" or "insular" (see Critchfield, 2002).

Immediacy index. This measure represents the average number of times articles were cited during their publication year. The immediacy index is a general measure of the latency of a journal's impact.

Cited half-life. This measure represents the number of publication years before the current year that account for half of the citations received in the current year. The cited half-life measure provides an indication of the impact of a journal's contemporary articles compared to ones published earlier.

Data-Entry Accuracy

Point-by-point interobserver agreement was calculated to assess the accuracy with which data were obtained from *JCR*. An agreement was defined as both observers transcribing the same figure (e.g., impact factor, immediacy index) for a journal in a specific year. Agreement was assessed for 44% of the records and was 100%.

RESULTS AND DISCUSSION

Figure 1 displays each journal's citation frequency and impact factor for the publication years of 1981 through 2000. Since the early 1980s, *BM*'s citation frequencies have remained near 400 per year and its impact factors have consistently been below 1.0. *BT*'s citation frequencies have remained near 1,500 per year since 1980 and have recently increased to over 1,800. *BT*'s impact factors have been consistently variable around a mean of 1.6. *BRAT*'s citation fre-

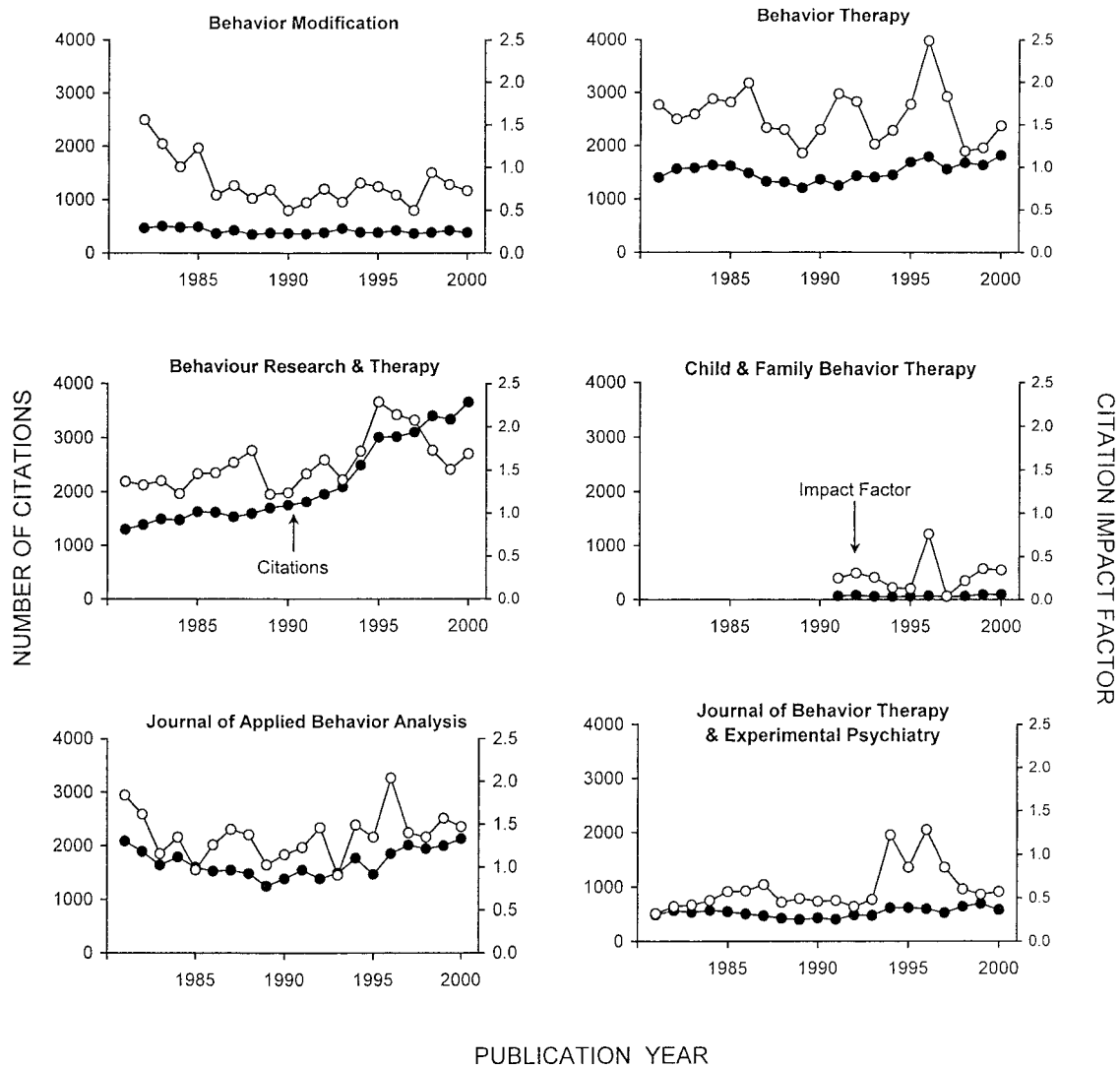


Figure 1. Number of citations (left y axis) and citation impact factor (right y axis) for each journal per publication year. *Behaviour Research and Therapy* incorporated *Behavioral Assessment* in 1993 and *Advances in Behaviour Research and Therapy* in 1996.

quencies have steadily increased from approximately 1,300 per year in the early 1980s to well over 3,000 in more recent years. The journal's impact factors increased between the early 1980s and the mid-1990s and have recently decreased to a level similar to those of the early 1990s. Although variable, *BRAT*'s impact factors have increased over the years from approximately 1.3 in the early 1980s to 1.6 in recent years. *CFBT*'s

citation frequencies have remained between 50 and 100 during the last decade (although *CFBT* began publication in 1979, it was not consistently included in the *JCR* database until 1991). *CFBT*'s impact factors have remained near 0.3 during the last decade. *JABA*'s citation frequencies decreased in the 1980s, but have since increased to levels (approximately 2,000 per year) similar to those of the early 1980s. *JABA*'s impact factors

Table 1
Citation Measures of Applied Journals in Behavioral Psychology During the 2000 Publication Year

Journal	Found- ing year	Times cited	Impact factor	Impact factor rank (% below) ^a	Self- citation rate (%)	Im- mediacy index	Cited half-life
<i>Behavior Modification</i>	1977	386	0.73	46 (44)	5.7	0.06	8.6
<i>Behavior Therapy</i>	1970	1,826	1.49	15 (82)	7.0	0.13	>10
<i>Behaviour Change</i>	1984	106	0.22	77 (6)	4.7	0.00	6.3
<i>Behaviour Research and Therapy</i>	1963	3,657	1.70	12 (85)	11.8	0.28	8.6
<i>Child and Family Behavior Therapy</i> ^b	1979	100	0.35	70 (15)	11.0	0.00	8.6
<i>Cognitive and Behavioral Practice</i>	1994	98	0.86	42 (49)	26.5	1.40	Unavailable
<i>Journal of Applied Behavior Analysis</i>	1968	2,131	1.47	17 (79)	23.7	0.23	9.2
<i>Journal of Behavior Therapy and Experimental Psychiatry</i>	1970	583	0.57	53 (35)	2.4	0.00	9.9
<i>Journal of Organizational Behavior Management</i>	1977	52	0.21	45 (8) ^c	48.1	0.00	Unavailable

^a Journals were ranked among 82 in the domain of clinical psychology.

^b Originally titled *Child Behavior Therapy* from 1979 to 1981.

^c *JOBM* was ranked among 49 in the domain of applied psychology.

have generally remained between 1.0 and 1.5 during the last two decades. *JBTEP*'s citation frequencies and impact factors have remained near 500 and 0.6, respectively, during the last two decades.

Table 1 displays multiple citation measures for nine applied journals in behavioral psychology for the 2000 publication year. There are several notable findings among these data. Impact factors for *BRAT*, *BT*, and *JABA* were ranked at the 85th, 82nd, and 79th percentile, respectively, among 82 journals in the "Clinical Psychology" domain. These were the only applied journals in behavioral psychology whose impact factors were ranked in the top half of their domain. *JOBM*, *CBP*, and *JABA* had relatively high self-citation rates (48.1%, 26.5%, and 23.7%, respectively). However, the data for *JOBM* and *CBP* can reasonably be considered artifacts due to their low citation frequencies (52 and 98, respectively). On the other hand, *JABA* had 2,131 citations during 2000, 505 of which were self-citations (see also Poling et al., 1994). Immediacy-index data indicate that none of the journals

was very likely to have articles cited during their publication year. Finally, cited half-life figures ranged from 6.3 years (*BC*) to over 10 years (*BT*), indicating that, with the exception of *BT*, the majority of the articles cited during 2000 were published after 1990.

The citation data analyzed in the current study reveal two distinct tiers of journals. *BRAT*, *BT*, and *JABA* are consistently cited more than 1,000 times per year and have impact factors greater than 1.0. These data suggest that these journals are making a clear and consistent impact on research in the discipline. On the other hand, *JBTEP*, *BM*, and *CFBT* are consistently cited fewer than 1,000 times per year and have impact factors less than 1.0. These data indicate that this second tier of journals makes substantially less of an impact on the research literature than the first tier, at least as evidenced by *JCR* citation data. However, regardless of each journal's relative impact, all of the journals in our longitudinal analysis have at least maintained their level of citations and impact factors over the years.

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